

REMARKS

This Preliminary Amendment is submitted to improve the form of the claims as originally-filed. In accordance with the foregoing, claims 1, 6, 11, and 16 are amended, and new claims 17 -18 are presented.

No new matter is presented in any of the foregoing and, accordingly, approval and entry of the amended claims and new claim are respectfully requested.

Claims 1-18 are pending.

CLAIM AMENDMENTS

Independent claims 1, 6 and 11 are amended herein to respectively recite a method, an apparatus, and a computer-readable storage medium, using claim 1 as an example, including "a plurality of transmission circuit topologies into which the analyzing circuit is categorizable depending on manners in which wirings are connected, wherein a transmission waveform of the analyzing circuit differs depending on each of the transmission circuit topologies."

Independent claim 16 is amended herein to recite a method including "categorizing an analyzing circuit into a plurality of transmission circuit wiring topologies depending on manners in which wirings are connected, wherein a transmission waveform of the analyzing circuit differs depending on each of the topologies."

No new matter is presented in any of the foregoing and, accordingly, approval and entry of the amended claims and new claim are respectfully requested.

Features According To An Aspect Of Present Invention

Independent claims 1, 6 and 11 (all as amended) respectively recite a method, an apparatus, and a medium, using claim 1 as an example, including "obtaining an analyzing circuit judgment result by judging acceptability of the analyzing circuit based on a comparison of features of the analyzing circuit and a plurality of transmission circuit topologies into which the analyzing circuit is categorizable depending on manners in which wirings are connected, wherein a transmission waveform of the analyzing circuit differs depending on each of the transmission circuit topologies; and outputting an improvement proposal making the analyzing circuit closer to one of basic types of the transmission circuit topologies depending on the analyzing circuit judgment result."

Independent claim 16, as amended, recites a method for determining a noise countermeasure including "categorizing an analyzing circuit into a plurality of transmission circuit wiring topologies depending on manners in which wirings are connected, wherein a transmission waveform of the analyzing circuit differs depending on each of the topologies; comparing

features of the analyzing circuit and the topologies; and outputting a noise countermeasure improvement proposal for making the analyzing circuit closer to one of basic types of the topologies based on the comparison."

That is, according to an aspect of the present invention a noise countermeasure is determined by:

(a) obtaining an analyzing circuit judgement result by judging acceptability of the analyzing circuit based on a comparison of features of the analyzing circuit and a plurality of transmission circuit topologies into which the analyzing circuit is categorizable depending on manners in which wirings are connected, wherein a transmission waveform of the analyzing circuit differs depending on each of the transmission circuit topologies; and

(b) outputting an improvement proposal for making the analyzing circuit closer to one of basic types of the transmission circuit topologies depending on the analyzing circuit judgement.

In contrast, the art previously relied on by the Examiner, i.e., Petschauer et al. (U.S.P. 5,596,506) merely teaches an IC chip fabrication method for obtaining a crosstalk voltage value that is lower than a noise margin, using a calculation formula.

Petschauer simply creates a trial layout from a circuit that is input, and estimates (or calculates) the crosstalk voltage based on the trial layout. Petschauer does not obtain an analyzing circuit judgement result according to an aspect of the present invention, as described above.

That is, Petschauer does not obtain an analyzing circuit judgement result by judging he acceptability of the analyzing circuit and wherein the transmission waveforms of the analyzing circuit differ depending on each transmission circuit topology.

Further, Petschauer simply estimates (or calculates) a crosstalk voltage by changing parameters within a predetermined range, such as "shortening the segment," "changing the driver circuit," and "adding a capacitor," based on a calculation formula, so as to obtain the parameters satisfying the noise margin.

That is, Petschauer does not output an improvement proposal as in the present invention and does not make an analyzing circuit closer to one of the basic types of the transmission circuit topologies depending on the analyzing circuit judgement result.

Since the surface area of an IC chip is small, and the distance between the adjacent nets is short, crosstalk presents a significant problem. On the other hand, since wiring lengths of the IC chip are generally short, there is not a significant difference in waveform qualities among the different transmission circuit topologies such as "load concentration type," "star type," and "daisy

chain type" wiring topologies.

However, in a case of printed circuit boards (PCB), wiring lengths are long in comparison to that of the IC chip, and the waveform qualities greatly differ depending on the transmission circuit topology. In addition, desirable wiring characteristics (such as wiring impedances) and the characteristics of the noise countermeasure parts (such as damping resistances) differ depending on the selected transmission circuit topology.

For these reasons unlike Petschauer, whose teachings are limited to an IC chip, the present invention determines noise countermeasure even with respect to an analyzing circuit such as a PCB, at an early stage of the design process.

Summary

Applicants submit that claims 1-16 are allowable over art previously relied on by the Examiner and should be found allowable.

NEW CLAIM

New claims 17 and 18 are presented to recite features of the present invention in a different fashion. Claims 17-18 recite a circuit topology for a noise countermeasure proposal, including "a circuit topology selectable from a plurality of transmission circuit topologies, wherein a transmission waveform of an analyzing circuit differs depending on each of the plurality of transmission circuit topologies."

These, and other, features of claims patentably distinguish over art previously cited by the Examiner, and they are submitted to be allowable for the recitations therein.

CONCLUSION

It is respectfully requested that this Preliminary Amendment be entered in the above-referenced application.

If there are any additional fees associated with filing of this Preliminary Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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Date: March 6, 2006

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